

Uplift at Bearings

T = Thread Length (In.)
 e = Tip Length (In.)
 P = Penetration (In.)
 W = Withdrawal Design Value (#/In.)
 $W_w = C_D PW$ for 1 Connector

Per 2005 NDS for Nails & Lags
 Per ESR-2236 (01-01-13) for SDS by Simpson
 Per ESR-2761 (10-01-11) for WS by USP

1.600 = Load Duration Factor (C_D)
 0.500 = Specific Gravity (G)

2x4 & 2x6 Chords:

1.5000 In. = Chord Depth (C)
 0.1000 In. = Bearing Clip Depth (B)

	Dia. (D) (In.)	Len. (L) (In.)	T Len. (In.)	Tip (e) (In.)	P (In.)	W (#/In.)	W_w (Lbs.)	2 Conn. (Lbs.)	4 Conn. (Lbs.)	
16d Box	0.135	3.500	0.000	0.00000	1.9000	33.0	100.32	2 Nail 200	4 Nail 400	16d Box
16d Com	0.162	3.500	0.000	0.00000	1.9000	40.0	121.60	242	484	16d Com
1/4"x3 1/2" Lag	0.25	3.500	2.250	0.15625	1.7438	225.0	627.75	2 Lag 1,254	4 Lag 2,508	1/4"x3 1/2" Lag
1/4"x4 1/2" Lag	0.25	4.500	2.750	0.15625	2.5938	225.0	933.75	1,866	3,732	1/4"x4 1/2" Lag
1/4"x3 1/2" SDS	0.25	3.500	2.250	0.00000	1.9000	172.0	522.88	2 SDS 1,044	4 SDS 2,088	1/4"x3 1/2" SDS
1/4"x4 1/2" SDS	0.25	4.500	2.750	0.00000	2.7500	172.0	756.80	1,512	3,024	1/4"x4 1/2" SDS
1/4"x3 1/2" WS	0.25	3.500	2.500	0.00000	1.9000	208.0	632.32	2 WS 1,264	4 WS 2,528	1/4"x3 1/2" WS
1/4"x4 1/2" WS	0.25	4.500	3.000	0.00000	2.9000	214.0	992.96	1,984	3,968	1/4"x4 1/2" WS

3x4 Chords:

2.5000 In. = Chord Depth (C)
 0.1000 In. = Bearing Clip Depth (B)

	Dia. (D) (In.)	Len. (L) (In.)	T Len. (In.)	Tip (e) (In.)	P (In.)	W (#/In.)	W_w (Lbs.)	2 Conn. (Lbs.)	4 Conn. (Lbs.)	
20d Box	0.148	4.000	0.000	0.00000	1.4000	36.0	80.64	2 Nail 160	4 Nail 320	20d Box
20d Com	0.192	4.000	0.000	0.00000	1.4000	47.0	105.28	210	420	20d Com
1/4"x4 1/2" Lag	0.25	4.500	2.750	0.15625	1.7438	225.0	627.75	2 Lag 1,254	4 Lag 2,508	1/4"x4 1/2" Lag
1/4"x6" Lag	0.25	6.000	3.500	0.15625	3.2438	225.0	1167.75	2,334	4,668	1/4"x6" Lag
1/4"x4 1/2" SDS	0.25	4.500	2.750	0.00000	1.9000	172.0	522.88	2 SDS 1,044	4 SDS 2,088	1/4"x4 1/2" SDS
1/4"x6" SDS	0.25	6.000	3.250	0.00000	3.2500	172.0	894.40	1,788	3,576	1/4"x6" SDS
1/4"x4 1/2" WS	0.25	4.500	3.000	0.00000	1.9000	214.0	650.56	2 WS 1,300	4 WS 2,600	1/4"x4 1/2" WS
1/4"x6" WS	0.25	6.000	4.000	0.00000	3.4000	214.0	1164.16	2,328	4,656	1/4"x6" WS

NOTE: Penetration can not exceed effective thread length.
 Effective thread length for lag = T-e